ABSTRACT OF THE DISCLOSURE

This invention can multiplex noise on multilevel
image data to reversibly embed visible additional
information with a noise-multiplexed distribution while
5   maintaining the atmosphere of the multilevel image data
subjected to embedding. For this purpose, in this
invention, when noise is multiplexed on multilevel
image data to embed visible additional information with
a noise-multiplexed distribution, information
10   representing whether or not to multiplex noise for each
pixel is input as the additional information. Whether
a pixel of interest in the multilevel image data is
located at a position where noise is to be multiplexed
is determined on the basis of the additional
15   information (S106). When the pixel of interest is
determined to be located at the position where noise is
to be multiplexed, the second bit region where noise is
to be multiplexed is specified on the basis of the
first bit region in a bit configuration which
20   constitutes the pixel of interest (S110). Bit
information in the second bit region of the specified
pixel of interest is changed (S112, S114).